AMENDMENT

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 – 24. (cancelled)

25. (currently amended) A computer-implemented method for generating description records from multimedia content, comprising:

identifying multimedia types in multimedia content;

extracting multimedia objects to generate multimedia object descriptions from the multimedia content for at least one of the multimedia types;

generating, from the multimedia object descriptions, non-hierarchical entity relation graph descriptions for at least one of the multimedia types, wherein the non-hierarchical entity relation graph descriptions are associated with communication between multimedia objects; and

integrating the multimedia object descriptions and the entity relation graph descriptions to generate at least one description record to represent content embedded within the multimedia content.

26. (Previously Presented) The method of claim 25, further comprising generating, from the multimedia object descriptions, multimedia object hierarchy descriptions by object hierarchy construction and extraction processing, for at least one of the multimedia types.

27. (Previously Presented) The method of claim 25, wherein the multimedia types include at least one of image, audio, video, synthetic, and text.

28. (Previously Presented) The method of claim 25, wherein the extracting of multimedia objects further comprises:

segmenting each multimedia content into segments including content from at least one of the multimedia types for the multimedia content; and

generating at least one feature description for at least one of the segments by feature extraction and annotation;

wherein the generated multimedia object descriptions comprise the at least one feature description for the at least one segment.

29. (Previously Presented) The method of claim 28, wherein the segments are selected from the group consisting of local segments and global segments.

30. (Previously Presented) The method of claim 28, further comprising selecting the at least one feature description from the group consisting of media, semantic and temporal features.

31. (Previously Presented) The method of claim 30, wherein the media features are further defined by at least one feature description selected from the group consisting of data location, scalable representation and modality transcoding.

32. (Previously Presented) The method of claim 30, wherein the semantic features are further defined by at least one feature description selected from the group consisting of keywords, who, what object, what action, why, when, where and text annotation.

33. (Previously Presented) The method of claim 30, wherein the temporal features are further defined by at least one feature description consisting of duration.

34. (Previously Presented) The method of claim 28, wherein the extracting of multimedia objects further comprises:

generating media object descriptions from the multimedia segment for one of the multimedia types by media object extraction processing;

generating media object hierarchy descriptions from the generated media object descriptions by object hierarchy construction and extraction processing; and

generating media entity relation graph descriptions from the generated media object descriptions by entity relation graph generation processing.

35. (Previously Presented) The method of claim 34, wherein generating media object descriptions further comprises:

segmenting the content of each multimedia type in the multimedia object into segments within the multimedia object by media segmentation processing; and

generating at least one feature description for at least one of the segments by feature extraction and annotation;

wherein the generated media object descriptions comprise the at least one feature description for the at least one of the segments.

36. (Previously Presented) The method of claim 35, further comprising the step of selecting the at least one feature description from the group consisting of media, semantic and temporal.

37. (Previously Presented) The method of claim 35, wherein generating media object hierarchy descriptions generates media object hierarchy descriptions of the media object descriptions based on media feature relationships of media objects represented by the media object descriptions.

38. (Previously Presented) The method of claim 35, wherein generating media object hierarchy descriptions generates semantic object hierarchy descriptions of the media object descriptions based on semantic feature relationships of media objects represented by the media object descriptions.

39. (Previously Presented) The method of claim 35, wherein generating media object hierarchy descriptions generates temporal object hierarchy descriptions of the media object descriptions based on temporal features relationships of media objects represented by the media object descriptions.

40. (Previously Presented) The method of claim 35, wherein generating media object hierarchy descriptions generates media object hierarchy descriptions of the media object descriptions based on relationships of media objects represented by the media object descriptions, and wherein the relationships are selected from the group consisting of media feature relationships, semantic feature relationships, temporal feature relationships, and spatial feature relationships.

41. (Previously Presented) The method of claim 35, wherein generating media entity relation graph descriptions generates entity relation graph descriptions of the media object descriptions based on relationship of the media objects represented by the media object descriptions, wherein the relationships are selected from the group consisting of media feature relationships, semantic feature relationships, temporal feature relationships and spatial feature relationships.

42. (Previously Presented) The method of claim 26, wherein generating multimedia object hierarchy descriptions generates multimedia object hierarchy descriptions of the multimedia object descriptions based on media feature relationships of multimedia objects represented by the multimedia object descriptions.

43. (Previously Presented) The method of claim 26, wherein generating multimedia object hierarchy descriptions generates semantic object hierarchy descriptions of the multimedia object descriptions based on semantic feature relationships of multimedia objects represented by the multimedia object descriptions.

44. (Previously Presented) The method of claim 26, wherein generating multimedia object hierarchy descriptions generates temporal object hierarchy descriptions of the multimedia object descriptions based on temporal feature relationships of multimedia objects represented by the multimedia object descriptions.

45. (Previously Presented) The method of claim 26, wherein generating multimedia object hierarchy descriptions generates multimedia object hierarchy descriptions of the multimedia object descriptions based on relationships of multimedia objects represented by the multimedia object descriptions, wherein the relationships are selected from the group consisting of media feature relationships, semantic feature relationships, temporal feature relationships and spatial feature relationships.

46. (Previously Presented) The method of claim 25, wherein generating entity relation graph descriptions generates the entity relation graph descriptions of the multimedia object descriptions based on relationships of multimedia objects represented by the multimedia object descriptions, wherein the relationships are

selected from the group consisting of media feature relationships, semantic feature relationships, temporal feature relationships and spatial feature relationships.

47. (Previously Presented) The method of claim 25, further comprising receiving and encoding the multimedia object descriptions into encoded description information, and storing the encoded description information as the at least one description record.

48. (Previously Presented) The method of claim 26, further comprising combining the multimedia object description, the multimedia object hierarchy descriptions, and the entity relation graph description to form a multimedia description, and receiving and encoding the multimedia description into encoded description information, and storing the encoded description information as the at least one description record.

49. (Previously Presented) The method of claim 47, wherein the encoding comprises binary encoding.

50. (Previously Presented) The method of claim 48, wherein the encoding comprises binary encoding.

51. (Previously Presented) The method of claim 47, wherein the encoding comprises the extensible Markup Language (XML) encoding.

52. (Previously Presented) The method of claim 47, wherein the encoding comprises the extensible Markup Language (XML) encoding.

53. (cancelled)

54. (New) A computer-readable medium storing instructions for controlling a computing device to utilize description records from multimedia content, the instructions comprising:

identifying multimedia types in multimedia content;

extracting multimedia objects to generate multimedia object descriptions from the multimedia content for at least one of the multimedia types;

generating, from the multimedia object descriptions, non-hierarchical entity relation graph descriptions for at least one of the multimedia types, wherein the non-hierarchical entity relation graph descriptions are associated with communication between multimedia objects; and

integrating the multimedia object descriptions and the entity relation graph descriptions to generate at least one description record to represent content embedded within the multimedia content.

55. (New) A computing device that generates description records from multimedia content, the computing device comprising:

a module configured to identify multimedia types in multimedia content;

a module configured to extract multimedia objects to generate multimedia object descriptions from the multimedia content for at least one of the multimedia types;

a module configured to generate, from the multimedia object descriptions, non-hierarchical entity relation graph descriptions for at least one of the multimedia types, wherein the non-hierarchical entity relation graph descriptions are associated with communication between multimedia objects; and

a module configured to integrate the multimedia object descriptions and the entity relation graph descriptions to generate at least one description record to represent content embedded within the multimedia content.